

# NIRSS Display System

Stephan Zednik  
Marcia Politovich

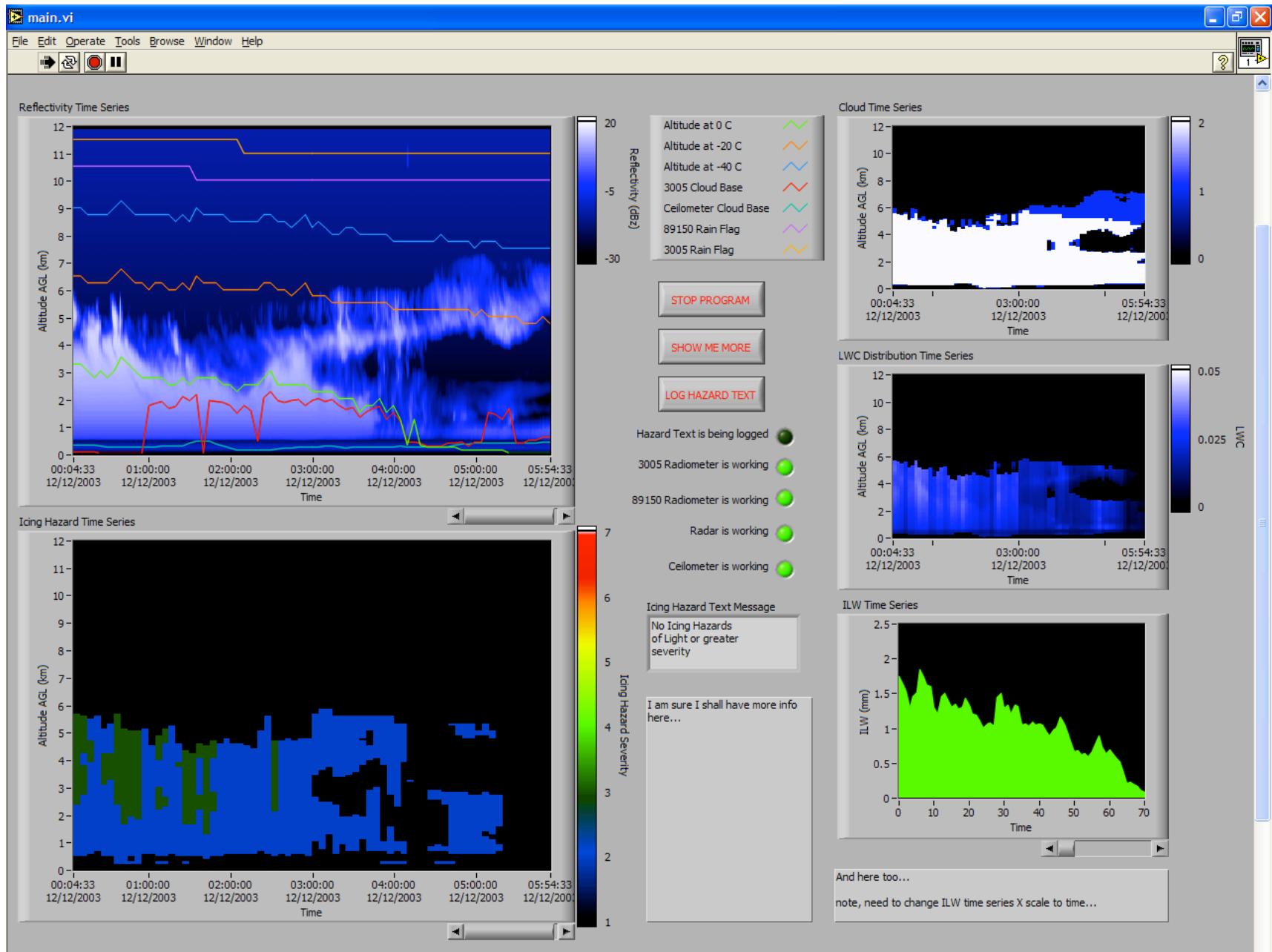
For Gov't Remote Sensing for Icing Coordination Meeting  
Boulder, CO 25 August 2004

# NIRSS Basics

- X-band radar → • Where are clouds?
- Profiling radiometer → • T profile
  - Atmospheric T, RH profiles
  - ILW and Pwat (total vapor)
  - Tb and  $\Delta$
- Lidar ceilometer → • Cloud base
- 89/150 GHz radiometer → • Not yet used – future use for mixed-phase cloud detection
- Ka-band radar → • Not yet used – future use for dual-wavelength liquid retrieval, possible increased sensitivity over x-band system

# Recent Upgrades

- Improved/simplified/modularized flow and logic
- Real-time display
- Multiple pages
  - Main
  - Intermediate products
- Text message to logger
- Algorithms
  - Cloud identification
  - ILW distribution to multiple cloud layers
  - LWC profiles – simple fuzzy logic
  - Icing severity



# Future Upgrades

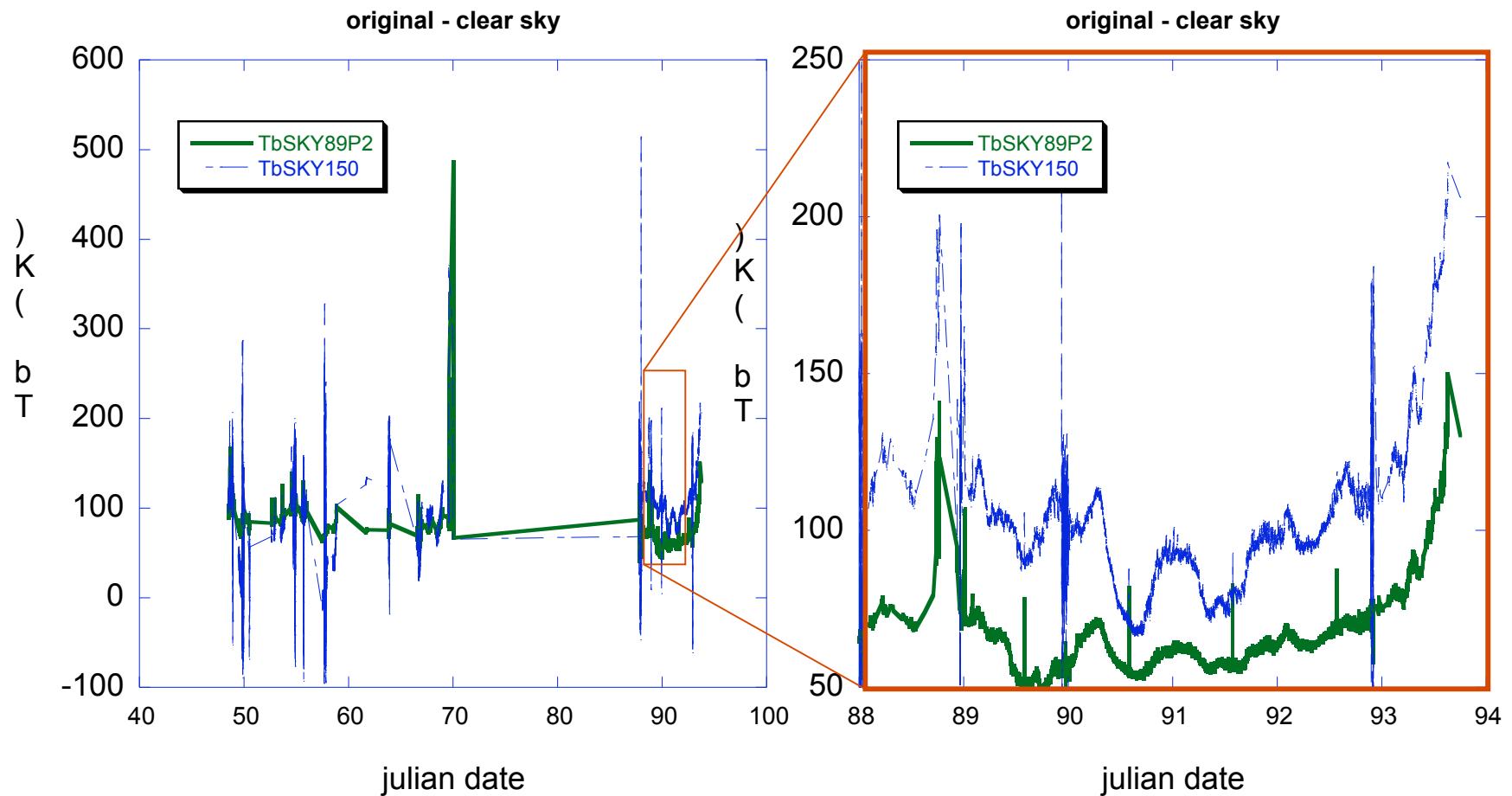
- Increased/more flexible usability
- Add 89/150 GHZ radiometer
  - Need ice ID algorithm
  - Data quality!
- Data QC for all instruments
- Add outside data inputs
  - Numerical models
  - NEXRAD
  - Satellite

# Radiometer Data

- □ – need at constant elevation angles
- Need data quality control!
  - Data are noisy
  - 89/150 GHZ data are frequently bad

# TCIP

- Terminal-scale Current Icing Potential
- For Cleveland-Detroit-Buffalo (Eastern Great Lakes) area
- Higher spatial resolution than CIP – 1 or 5 km
- Temporal resolution 20 min or 1 h
- Data inputs
  - 20-km RUC
  - NEXRAD 1-km mosaic
  - GOES 1-km satellite
  - METARS
  - PIREPs
- Output will show icing and SLD potential and expected severity
- Output and intermediate fields will form a baseline for future improvements
- Should coincide with TAMDAR GLFE – demo of measurement/datalink system with Mesaba AirLines



# National-scale CIP

